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jc772 U.S. PTO
05/26/00

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26 May 2000

INTELLECTUAL PROPERTY LAW

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Attorney Docket: P56056

Sir:

Submitted herewith is the following patent application:

Inventor: 1) SUNG-SOO LEE

Title: **METHOD FOR CONTROLLING FAX DATA TRANSMISSION
ACCORDING TO AN OUTPUTTING WAY OF A RECEIVING
PART**

Please find attached hereto an application for patent which includes: Specification and Abstract, Claims, original Declaration And Power of Attorney, Assignment, and a certified copy of the foreign priority document identified below:

Verified Showing of Small Entity Status: NO

Drawings: Formal drawings, 5 sheets, Figures 1 through 5

Claim of priority under 35 U.S.C. §119: YES
** The Republic Of Korea Application No. 28465/1999 filed on 14 July 1999.

FEE (see formula below): CHECKS ARE ENCLOSED (#36595 and #36596)

Basic Fee \$345/690 \$690.00

Additional Fees:

Total number of claims in excess of 20: ____ times \$9/18 . \$0.00

Number of independent claims in excess of 3: ____ times \$39/78 \$0.00

Multiple Dependent Claims \$130/260 \$0.00

An Assignment is likewise enclosed: Recording Fee \$40 .. \$40.00

Filing Non-English specification \$0.00

TOTAL FEES FOR THE ABOVE APPLICATION \$730.00

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26 May 2000
Page Two

Docket No.: P56056

Inventor: 1) SUNG-SOO LEE

Title: **METHOD FOR CONTROLLING FAX DATA TRANSMISSION
ACCORDING TO AN OUTPUTTING WAY OF A RECEIVING
PART**

Assistant Commissioner is authorized to charge our Deposit Account No. 02-4943 for any additional charges necessary towards payment of the filing fee for the above-referenced application. Please notify the undersigned attorney of any transaction regarding our Deposit Account.

In view of the above, it is requested that this application be accorded a filing date pursuant to 37 CFR 1.53(b).

Please address all correspondence to:

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Respectfully submitted,



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REB/sb

TITLE OF THE INVENTION

METHOD FOR CONTROLLING FAX DATA TRANSMISSION

ACCORDING TO AN OUTPUTTING WAY OF A RECEIVING PART

CLAIM OF PRIORITY

This application makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from an application entitled *Method for Controlling Fax Data Transmission According to the Printing Method of Receiver* earlier filed in the Korean Industrial Property Office on 14 July 1999, and there duly assigned Serial No. 99-28465 by that Office.

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a method for controlling transmission of facsimile data. More specifically, the invention relates to a method for transmitting facsimile data from a memory of a transmitting part facsimile to a receiving part facsimile in order or in reversed order according to a facsimile data receiving and outputting way of the receiving part facsimile.

Description of the Related Art

Generally, a facsimile is a machine for exchanging documents. In the facsimile, a scanner for scanning a document, a printer for outputting data in the shape of letters, and a communication

1 unit for transmitting and/or receiving data to and/or from another part in wide area are integrally
2 formed. Such a facsimile includes a variety of additional functions to meet demands of users. As
3 one of the additional functions, facsimile data is scanned and stored in a memory before being
4 transmitted. The facsimile data scanned and stored in the memory is advance-transmitted from a
5 transmitting part facsimile to a receiving part facsimile in order from the first page regardless of the
6 facsimile (fax) data outputting way of the receiving part facsimile. At this time, the receiving part
7 needs to realign the fax data on every reception of the fax data.

8 Exemplars of the art, U.S. Patent 5,877,870 for *Image Transmission Control Method for*
9 *Facsimile Apparatus* issued to Sakai, U.S. Patent 5,515,177 for *Facsimile Data Transmission over*
10 *a Low Rate Network by One Dimensional Decoding and Two Dimensional Re-encoding* issued to
11 Propach et al., U.S. Patent 4,661,857 for *Facsimile Communication Control Method* issued to
12 Kondo, U.S. Patent 6,040,922 for *Devices and Method for Facsimile and Data Communication*
13 issued to Umeda et al. , U.S. Patent 5,907,599 for *Facsimile Communication Method and Facsimile*
14 *Machine* issued to Sakayama et al. and U.S. Patent 5,796,493 for *Facsimile Machine* issued to
15 Murai et al. disclose the data transmission for a facsimile device.

16 I have found that conventional art does not properly show an efficient way for the receiving
17 part facsimile to avoid reordering the facsimile data on every reception.

18 **SUMMARY OF THE INVENTION**

19 It is therefore an object of the present invention to provide a method for transmitting fax data

1 stored in the memory of the transmitting part facsimile to the receiving part facsimile according to
2 the fax data outputting way of the receiving part facsimile.

3 It is another object to have a more efficient method of organizing facsimile data for printing
4 on a receiving part facsimile.

5 It is yet another object to have a method supporting a non-standard mode while avoiding the
6 receiving part to realign the fax data on every reception of the fax data.

7 It is another object to have a system that will give a visual feedback to the user on the
8 transmitting part facsimile about the ordering method of the data set by the receiving part facsimile.

9 The above and other objects are provided according to the present invention by providing a
10 method for controlling transmission of fax data as described hereinafter. A document to be
11 transmitted from a transmitting part facsimile to a receiving part facsimile is scanned and stored.
12 When the document is completely scanned, a pre-entered telephone number of the receiving part is
13 dialed. After the receiving part telephone number is dialed, a data outputting way is required and
14 received from the receiving part facsimile, in the case that a call for transmitting document data is
15 fixed between the transmitting part facsimile and the receiving part facsimile. Then the document
16 data stored according to the received data outputting way is transmitted.

17 Preferably, the method for controlling transmission of fax data further includes the step of
18 displaying the data outputting way of the receiving part facsimile received from the receiving part
19 facsimile. The data outputting way applied to the present invention may be one of a face down way
20 in which the stored document data is output in order from the first page of the stored document data;

1 and a face up way in which the stored document data is output in reversed order from the last page
2 of the stored document data.

3 In addition, according to the present invention, both of the transmitting part facsimile and
4 the receiving part facsimile support a non-standard mode and report the data outputting way by
5 fixing a data outputting way mode bit. Moreover, the scanned document data is managed in the unit
6 of pages and stored in the memory.

7 **BRIEF DESCRIPTION OF THE DRAWINGS**

8 A more complete appreciation of this invention, and many of the attendant advantages
9 thereof, will be readily apparent as the same becomes better understood by reference to the following
10 detailed description when considered in conjunction with the accompanying drawings in which like
11 reference symbols indicate the same or similar components, wherein:

12 FIG. 1 is a perspective view of facsimiles interconnected to perform the present invention;

13 FIG. 2 is a block diagram of a facsimile for performing the present invention;

14 FIG. 3 is a conceptional view of protocols for transmitting and receiving fax data;

15 FIG. 4 is a flowchart of a method for controlling transmission of fax data according to a
16 outputting way of a receiving part; and

17 FIG. 5 is an embodiment of a display in a transmitting part facsimile after the outputting way
18 of the receiving part is detected according to the present invention.

1 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

2 Turning now to the drawings, as shown in FIG. 1, a transmitting part facsimile 100 is
3 connected to a receiving part facsimile 200 by means of a communication net so that data can be
4 exchanged between the facsimiles 100 and 200.

5 Referring to FIG. 2, a controller 110 generally controls the transmitting part facsimile 100
6 according to a system program that is fixed in a memory 150 to operate the facsimile 100. In
7 addition, the controller 110 controls a method for transmitting fax data stored in the memory 150 to
8 the receiving part facsimile 200 corresponding to a fax data outputting way transmitted from the
9 receiving part facsimile 200.

10 In the memory 150, the system program for operating the transmitting part facsimile 100, and
11 contents related to transmission and reception of protocol data and letter data are stored. According
12 to the present invention, pre-scanned document data to be advance-transmitted is stored in the
13 memory 150 and transmitted to the receiving part facsimile 200 by a transmission signal from the
14 controller 110.

15 An operational panel (OPE) 170 includes, as shown in FIG. 5, a plurality of keys 172 and
16 173 for generating key data of the transmitting part facsimile 100. When generated, the key data is
17 input into the controller 110. The OPE 170 further includes a displaying unit 171 for displaying the
18 processed state of various operations of the controller 110 and display data such as system
19 information. In addition, according to the present invention, the data outputting way of the receiving
20 part facsimile 200 which is transmitted from the receiving part facsimile 200 is displayed on the

1 displaying unit 171.

2 A scanner 160 scans data of the document, converts the scanned data into digital image data,
3 and supplies the controller 110 with the converted digital image data. A modem 120 modulates and
4 outputs output data of the controller 110 into analog form and demodulates and outputs analog input
5 signals by control of the controller 110.

6 A network control unit (NCU) 130 is operated to form a communication loop of a public
7 switching telephone network (PSTN) formed of a ring and a tip and interface signals of the modem
8 120 and the PSTN by control of the controller 110. A printer 140 outputs print data stored in the
9 memory 150 by a print signal from the controller 110.

10 Referring to FIG. 3, Phase A is a sequence of fixing a call and establishing a communication
11 line. In the case of a manual operation, the transmitter dials the telephone number of the receiving
12 part under the off-hook state, senses the bell sound of 16 Hz from the receiving part subscriber,
13 checks whether the receiving part is hooked off, and connects the facsimile to the communication
14 line when it is checked that the receiving part is hooked off. In the case of an automatic operation,
15 when the facsimile is connected to the communication line and the receiving part facsimile is in a
16 fax mode, a 1100 Hz tone is transmitted from the transmitting part to the receiving part for 0.5
17 second at an interval of 3 seconds until the receiving part responds. At this time, the receiving part
18 transmits a 2100 Hz tone for 2.6 to 4 seconds. The receiving part transmits the called equipment
19 discrimination signal (CED).

20 Phase B is a sequence of checking the states of a terminal and a transmission line and

1 controlling the terminal. In Phase B, the transmitting and receiving standby states of the terminal,
2 display and determination of a terminal constant and synchronizing state are checked and a fax
3 message is prepared to be transmitted.

4 Phase C is divided into Phase C1 for control during message transmission and Phase C2 for
5 transmission of the fax message. In other words, Phase C is a sequence of transmitting the message,
6 checking the message transmission, and maintaining synchronism.

7 Phase D is a sequence of terminating the message and terminating reception and so on. The
8 disconnection command signal (DCN) would be sent by the transmitting part to the receiving part.
9 In the case of continuous transmission, Phase D is followed by Phase B or Phase C to repeat the
10 transmitting sequence.

11 In addition, signals used in the protocols as shown in FIG. 3 will be described hereinafter.
12 Non-standard facilities (NSF) is used to discriminate demands of a specific user that cannot be
13 covered by T recommendation. ITU-T (International Telecommunications Union) recommendation
14 sets a protocol for facsimile calls. Called subscriber identification (CSI) is used to supply a specific
15 discriminating member of a subscriber of a receiving part by an international telephone number.
16 Digital identification signal (DIS) specifies a standard CCITT (Consultive Committee International
17 Telegraph and Telephone) capability of the receiving part equipment.

18 In addition, non-standard facilities set-up (NSS) is a digital command responding to
19 information included in an NSF signal. Transmitting subscriber identification (TSI) reports that the
20 continuous information is the discriminating member of the transmitting part, and supplies facsimile

1 procedure with additional security information. Digital command signal (DCS) is a digital setup
2 command responding to a standard capacity checked by the DIS signal.

3 Confirmation to receive (CFR) is a digital response confirming that the entire previous
4 message procedure is completed and the message transmission starts. End of procedure (EOP) is
5 a response that the message transmission is completed. In addition, message confirmation (MCF)
6 reports that the entire message is satisfactorily received and displays whether an additional message
7 exists or not.

8 Referring to FIGs. 1 to 5, the method for controlling transmission of fax data according to
the outputting way of the receiving part of the present invention will be described hereinafter.

First, an advance-transmitting function is selected. Then, the telephone number of the receiving part facsimile 200 is input using the number and letter generating unit 172 of the OPE 170 as shown in FIGs. 2 and 5. In order to transmit fax data from the transmitting part facsimile 100 to the receiving part facsimile 200, a document is scanned and stored in the memory 150 (S100).

When the document is completely scanned, the controller 110 dials the pre-inputted telephone number of the receiving part facsimile 200 to transmit the data stored in the memory 150 (S200).

16 After the telephone number is dialed, it is determined whether a call for exchanging fax data between
17 the transmitting part facsimile 100 and the receiving part facsimile 200 is connected or not (S300).

18 The determination as to whether the call is connected can be checked through predetermined
19 protocol exchanges after a dialing signal is received from the controller 110 shown in Figure 2 to
20 the receiving part facsimile 200. If it is determined that the call for exchanging the fax data between

1 the transmitting part facsimile 100 and the receiving part facsimile 200 is formed, the transmitting
2 part requires the fax data outputting way of the receiving part facsimile 200 (S400).

3 The requirement of the fax data outputting way is performed in Phase B that is a sequence
4 of generally checking the states of the facsimile and the transmission line and controlling the
5 facsimile among the protocols used for transmission and reception of the fax data as shown in FIG.

6 3. As described above, in Phase B, the facsimile transmission and reception standby state and
7 synchronization state are checked and the fax message is prepared to be transmitted. In other words,
8 the transmitting part facsimile 100 requires the fax data outputting way applied to the receiving part
9 facsimile 200 to be reported in Phase B.

10 According to a preferred embodiment of the present invention, T.30 protocol is applied to
11 transmission and reception. In the case that the transmitting part and the receiving part respectively
12 support a non-standard mode, the receiving part reports the fax data outputting way through a pre-
13 fixed (predetermined) fax data outputting way mode bit.

14 When required to report the fax data outputting way, the receiving part facsimile 200
15 transmits a presently applied fax data outputting way to the transmitting part facsimile 100 (S500).

16 Receiving the fax data outputting way of the receiving part facsimile 200, the transmitting
17 part facsimile 100 displays the received fax data outputting way on the displaying unit 171 of the
18 OPE 170 as shown in FIG. 5 (S600). After the fax data outputting way is displayed, the fax data
19 stored in the memory 150 is transmitted to the receiving part facsimile 200 according to the
20 displayed fax data outputting way (S700).

1 The fax data outputting way of the receiving part facsimile 200 applied to the present
2 invention is one of a face down way in which document data stored in the memory 150 is output in
3 order from the first page thereof and a face up way in which document data is output in reversed
4 order from the last page thereof.

5 Step S700 will be described more in detail. After the fax data outputting way is displayed at
6 step S600, it is determined whether the fax data outputting way is the face down way or not (S710).

7 If it is determined that the fax data outputting way is the face down way, the document data stored
8 in the memory 150 is transmitted to the receiving part facsimile 200 in order from the first page of
9 the document data (S720). Otherwise, if it is determined that the fax data outputting way is the face
10 up way, the document data stored in the memory 150 is transmitted to the receiving part facsimile
11 200 in reversed order from the last page of the document data (S730).

12 As described above, the present invention divides and stores the fax data into units of pages
13 and transmits the fax data in order or in reversed order according to the fax data outputting way of
14 the receiving part when the fax data is advance-transmitted in the memory. Accordingly, the fax data
15 does not need to be realigned when received which results in an enhanced convenience.

16 This invention has been described above with reference to the aforementioned embodiments.
17 It is evident, however, that may alternatives, modifications and variations will be apparent to those
18 having skill in the art in light of the foregoing description. Accordingly, the present invention
19 embraces all such alternatives, modifications and variations as fall within the spirit and scope of the
20 appended claims and their equivalents.

WHAT IS CLAIMED IS:

1 1. A method for controlling transmission of fax data according to a data output order of a
2 receiving part, the method comprising the steps of:

3 scanning and storing a document into data to be transmitted from a facsimile of a transmitting
4 part to a facsimile of said receiving part;

5 dialing a predetermined telephone number of said receiving part when said document is
6 completely scanned;

7 requiring and receiving said data output order by said transmitting part from said receiving
8 part after the telephone number of said receiving part is dialed; and

9 transmitting said stored document data according to said received data output order.

10 2. The method of claim 1, further comprising the step of displaying said data output order
11 received from said receiving part.

12 3. The method of claim 1, with said data output order being either a face down way or a face
13 up way, said face down way being said stored document data outputted in order from a first page to
14 a last page of said stored document data, said face up way being said stored document data outputted
15 in reversed order from a last page to a first page of said stored document data.

1 4. The method of claim 1, with both of said transmitting part and said receiving part
2 supporting a non-standard mode, said receiving part reporting said data output order to said
3 transmitting part by sending a predetermined bit of data.

1 5. The method of claim 1, with said scanned document data being managed in a unit of a
2 page and being stored in a memory of said transmitting part.

1 6. The method of claim 1, with said requiring of said document order being made during
2 Phase B of a facsimile transmission, Phase B being a sequence of checking states of said transmitting
3 part and a transmission line and controlling said transmitting part among a plurality of predetermined
4 protocols used in transmission and reception of facsimile data.

1 7. The method of claim 1, with said dialing a predetermined telephone number of said
2 receiving part being automatic.

1 8. A method, comprising the steps of:
2 scanning a document into data to be transmitted from a facsimile of a transmitting part to a
3 facsimile of a receiving part;
4 storing said data of said document in a memory of said transmitting part;
5 making a call by dialing a predetermined telephone number of said receiving part when said

6 document is completely scanned and stored in said memory;

7 checking whether said call between said transmitting part and said receiving part is

8 connected;

9 requiring a data output order by said transmitting part from said receiving part when said call

10 is connected;

11 receiving said data output order by said receiving part from said transmitting part after said

12 requiring of said data output order;

13 transmitting said data of said document stored in said memory according to said received data

output order; and

displaying said data output order received from said receiving part on a display on an operational panel.

9. The method of claim 8, with said dialing the predetermined telephone number being automatically dialed when said document is completely scanned.

10. The method of claim 9, with said data output order being either a face down way or a face up way, said face down way being said stored document data outputted in order from a first page to a last page of said stored document data, said face up way being said stored document data outputted in reversed order from a last page to a first page of said stored document data.

1 11. The method of claim 10, with both of said transmitting part and said receiving part
2 supporting a non-standard mode, said receiving part reporting said data output order to said
3 transmitting part by sending an output order mode bit.

1 12. The method of claim 11, with said scanned document data being managed in a unit of
2 a page.

1 13. An apparatus, comprising:

2 a scanner of a transmitting part facsimile scanning data of a document and converting the
3 data into digital image data;

4 a control unit utilizing the digital image data from said scanner, said control unit controlling
5 a transmitting part facsimile according to a system program, said control unit requiring and receiving
6 a document output order from a receiving part facsimile, said document output order being an order
7 of document pages determined by and being printed on said receiving part facsimile;

8 a memory storing said system program guiding said control unit, the digital image data from
9 the document being stored in said memory before being transmitted to said receiving part facsimile
10 by a transmission signal from said controller;

11 an operational panel having a plurality of keys generating key data of said transmitting part
12 facsimile to said control unit, said operational panel having a display unit showing the document
13 output order of said receiving part facsimile;

14 a modem through a control of said control unit modulating said digital image data into analog
15 data formatted for transmission over a public telephone network; and
16 a network control unit forming a communication loop of the public telephone network having
17 a ring and a tip and interface signals of said modem, the public telephone network being connected
18 to said receiving part facsimile.

1 14. The apparatus of claim 13, with said document output order being either a face down
2 way or a face up way, said face down way being said stored document data outputted in order from
3 a first page to a last page of said stored document data, said face up way being said stored document
4 data outputted in reversed order from a last page to a first page of said stored document data.

1 15. The apparatus of claim 14, The method of claim 1, with both of said transmitting part
2 facsimile and said receiving part facsimile supporting a non-standard mode, said receiving part
3 facsimile reporting said data output order to said transmitting part facsimile by sending a
4 predetermined bit of data.

1 16. The apparatus of claim 15, with said digital image data being managed in a unit of a
2 page.

1 17. The apparatus of claim 16, with said requiring of said document output order being made

2 during Phase B of a facsimile transmission, Phase B being a sequence of checking states of said
3 transmitting part facsimile and a transmission line and controlling said transmitting part facsimile
4 among a plurality of predetermined protocols used in transmission and reception of facsimile data.

ABSTRACT OF THE DISCLOSURE

Disclosed is a method for controlling transmission of fax data according to a data outputting way of a receiving part, the method comprising the steps of: scanning and storing a document to be transmitted from a facsimile of a transmitting part to a facsimile of the receiving part; when the document is completely scanned, dialing a pre-inputted telephone number of the receiving part; after the receiving part telephone number is dialed, requiring and receiving the data outputting way from the receiving part facsimile, in the case that a call for transmitting data of the document is connected between the transmitting part facsimile and the receiving part facsimile; and transmitting the stored document data according to the received data outputting way.

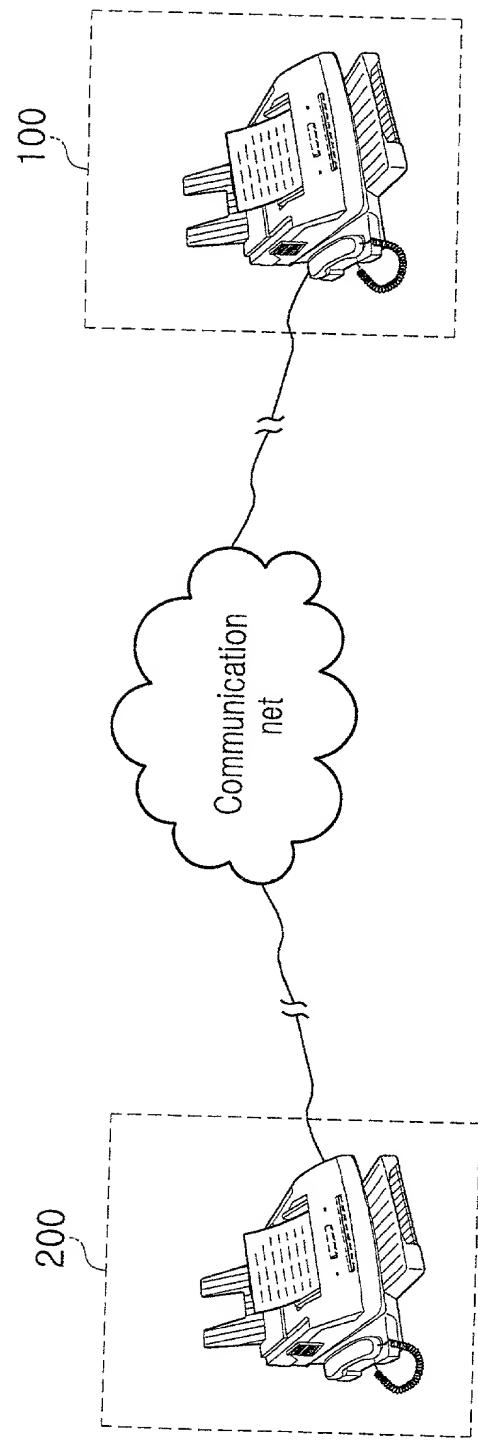


Fig. 1

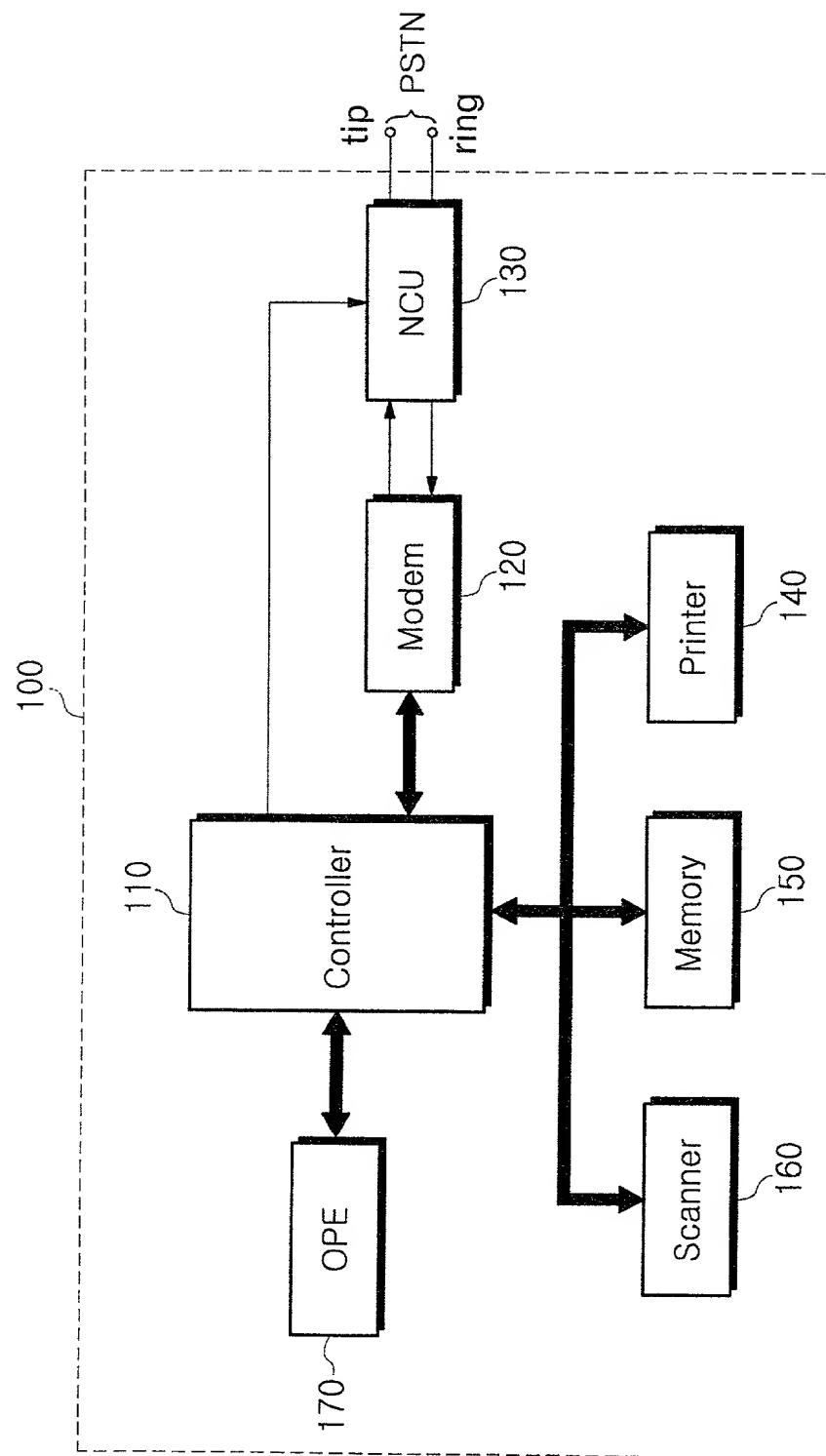


Fig. 2

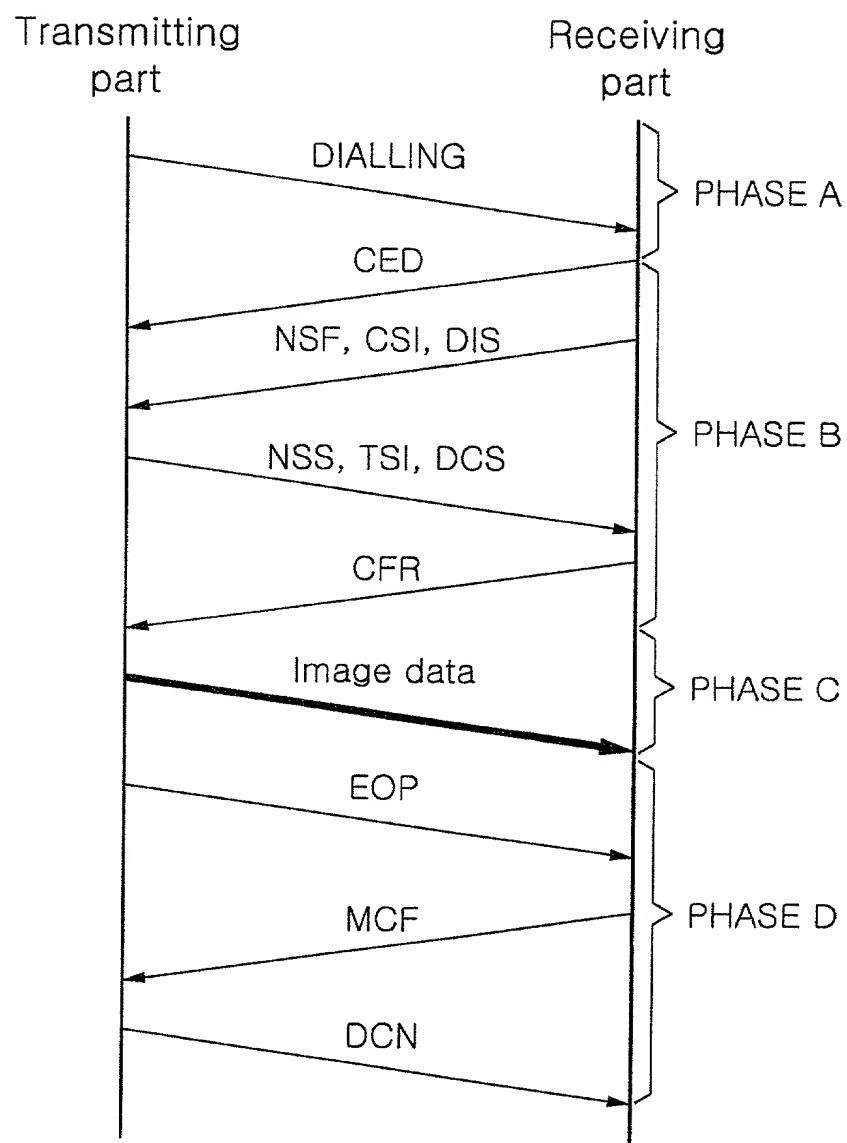


Fig. 3

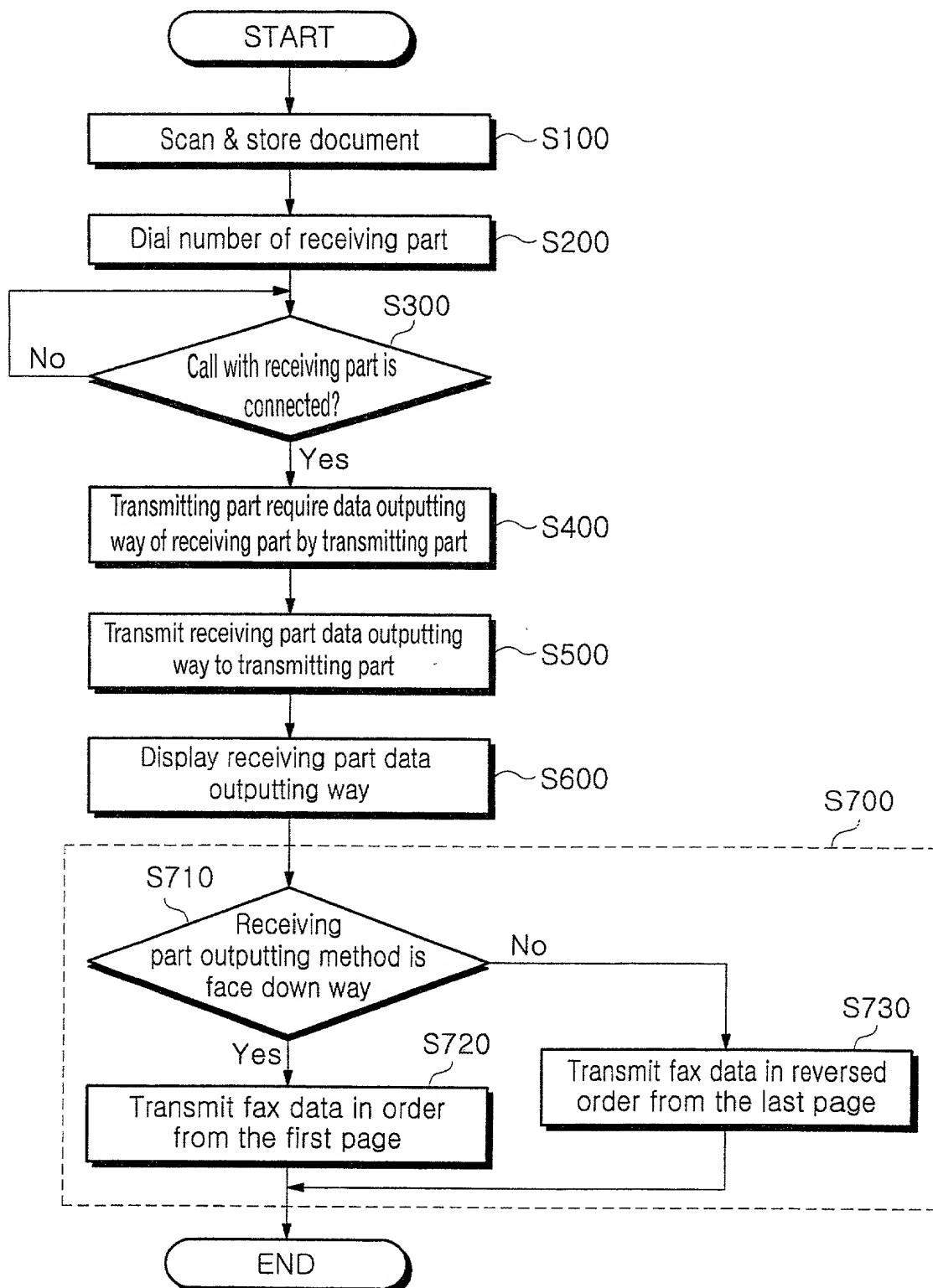


Fig. 4

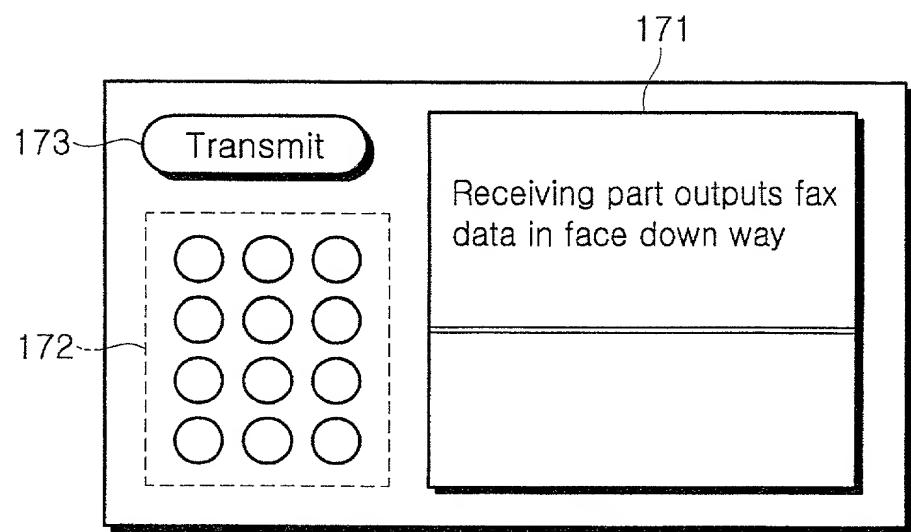


Fig. 5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SUNG-SOO LEE

Serial No.: *to be assigned*

Examiner: *to be assigned*

Filed: 26 May 2000

Art Unit: *to be assigned*

For: METHOD FOR CONTROLLING FAX DATA TRANSMISSION ACCORDING
TO AN OUTPUTTING WAY OF A RECEIVING PART

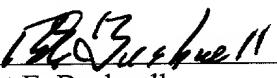
TRANSMITTAL OF DECLARATION

Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

This transmittal accompanies the original Declaration for the above-referenced application.

Respectfully submitted,



Robert E. Bushnell,
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Registration No.: 27,774

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Folio: P56056
Date: 26 May 2000
I.D.: REB/sb

DECLARATION

AS A BELOW NAMED INVENTOR, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name

I believe that I am the original, first and sole (*if only one name is listed below*), or an original, first and joint inventor (*if plural names are listed below*), of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**TITLE: METHOD FOR CONTROLLING FAX DATA TRANSMISSION ACCORDING TO
AN OUTPUTTING WAY OF A RECEIVING PART**

the specification of which either is attached hereto or otherwise accompanies this Declaration, or:

was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____

and (*if applicable*) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations, 1.56. I hereby claim foreign priority benefits under Title 35, U.S.C. Code, 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, or 119(e) of any United States provisional application(s), listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

28465/1999
(Application Number)

Republic of Korea
(Country)

14/JULY/1999
(Day/Month/Year filed)

Priority Claimed:
Yes No

(Application Number)

(Country)

(Day/Month/Year filed)

Yes No

I hereby claim the benefit under Title 35, U.S.C. Code, 120, of any United States application(s), or 365(e) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, 112, I acknowledge the duty to disclose information material to patentability as defined in Title 37. The Code of Federal Regulations, 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application

(Application Serial No.)

(Filing Date)

(STATUS: patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(STATUS: patented, pending, abandoned)

I hereby revoke all previously granted powers of attorney and appoint the following attorneys: Robert H. Bushnell, Reg. No. 27,774, Michael D. Parker, Reg. No. 34,973, and Henry M. Zykoric, Reg. No. 27,417, to prosecute this application and to transact all business in the U.S. Patent & Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

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I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Date: Aug 23, 2000

FULL NAME OF SECOND JOINT INVENTOR:

Citizenship:

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FULL NAME OF THIRD JOINT INVENTOR:

Citizenship:

Inventor's signature:

Residence & Post Office Address:

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FULL NAME OF FOURTH JOINT INVENTOR:

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Inventor's signature:

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